

REMARKS

Applicant respectfully requests reconsideration of this application as amended.

Office Action Rejections Summary

Claims 20-21, 24-25, and 28-30 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,754,043 of Kasamatsu et al. ("Kasamatsu").

Claims 22-23 and 26-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kasamatsu.

Claims 2-19 and 32-39 have been allowed over the prior art of record.

Status of Claims

Claims 2-24, 26-30 and 32-39 are pending in the application. Claims 20, 26, 27 and 28 have been amended. The amended claims are supported by the specification. In particular, support for the amendment to claim 20 may be found, for example, in Figure 2A of the present application. No claims have been added. No new matter has been added. Claim 25 has been canceled.

Claims 2-19 and 32-39 have been allowed over the prior art of record. Therefore, the following remarks are directed to the rejected claims.

Claim Rejections

Claims 20-21 and 24 have been rejected under 35 U.S.C. §102(e) as being anticipated by Kasamatsu. Claims 22-23 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kasamatsu. It is submitted that claim 20 is patentable over Kasamatsu.

Claim 20 as amended, recites:

A slider, comprising:

a slider body comprising:
an air bearing surface;
a leading edge step **having a non-sloping surface**; and
a protrusion disposed on the leading edge step of the slider body, the protrusion extending beyond the air bearing surface, and wherein the protrusion has a contoured leading edge.

(emphasis added)

Kasamatsu discloses a magnetic head slider having a **sloping** surface 8 at the air inflow end 5 of the slider body 1, as illustrated in Figure 2(b) of Kasamatsu as reproduced below.

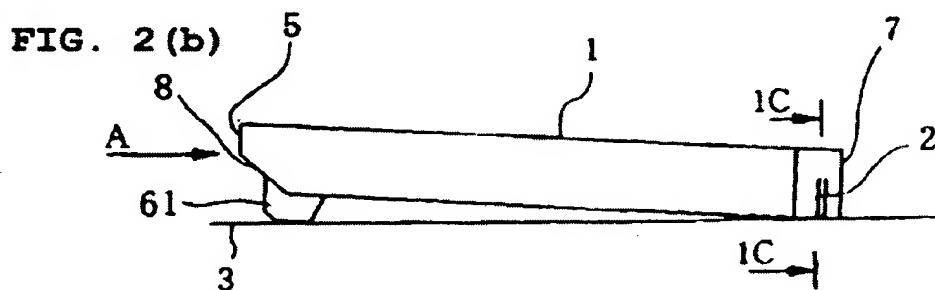


Figure 2(b) of Kasamatsu

In contrast to Kasamatsu, claim 20 recites a slider body comprising a leading edge “step having a non-sloping surface.” Nothing in Kasamatsu discloses a leading edge step having a non-sloping surface. Therefore, it is submitted that claim 20 is patentable over Kasamatsu.

Given that claims 21-24 depend from and include the limitations of claim 20, it is submitted that claims 21-24 are also patentable over Kasamatsu.

Claims 26-27 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kasamatsu. It is submitted that claim 26 and 27 are patentable over Kasamatsu.

Claim 26 recites:

A method, comprising:

flying a slider body with a positive pitch angle over a data zone surface of a disk; and

maintaining the positive pitch angle of the slider body during contact between the slider body and the data zone surface of the disk, wherein maintaining comprises **maintaining the positive pitch angle to be approximately in a range of 20 to 50 micro radians.**

(emphasis added)

Claim 27 recites:

A method, comprising:

flying a slider body with a positive pitch angle over a data zone surface of a disk; and

maintaining the positive pitch angle of the slider body during contact between the slider body and the data zone surface of the disk, wherein maintaining comprises **maintaining the positive pitch angle to be approximately in the range of 50 to 200 micro radians.**

(emphasis added)

The Office Action states:

Kasamatsu et al. meets all the additional limitations of these claims for the reasons given above regarding claims 20 and 25, except it does not explicitly specify a pitch angle range of 20-50 microradians, nor of 50-200 microradians, during operation. It does specify a positive pitch angle, but is silent as to the exact range of angles disclosed. **It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a pitch angle of 20-50 microradians or of 50-200 microradians, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.**

(Office Action, 2/24/05, pp. 3-4)(emphasis added).

Applicant respectfully disagrees with the Office Action's assertions. It is submitted that one of ordinary skill in the art would not be motivated to modify Kasamatsu in the manner purported by the Office Action. Kasamatsu teaches that projections 61 and 62 are formed at the boundary between the sloping surface 8 and a rail surface 8' of the floating rails 41 and 42, and are projected toward the magnetic disk 3 for the purpose of avoiding stiction between the head slider and the recording medium.

Kasamatsu further teaches that the projections 61 and 62 are required to have height in the range of about 20 nm to 30 nm, which establishes a positive pitch angle. (Kasamatsu, col. 3, line 56 to col. 4, line 7). Moreover, Kasamatsu teaches that although the pitch angle may be 'set up' in order to prevent the interference of projections, such a 'set up' is 'disadvantage[ous] in the viewpoint of balance of the flying condition.' (Kasamatsu, col. 1, lines 48-52).

The object of the teachings in Kasamatsu is to provide a drive system that avoids stiction between the head slider and the recording medium while maintaining balance of the flying condition of the head. As discussed above, Kasamatsu teaches that it is disadvantageous to create a positive pitch angle for the head slider. Accordingly, one of ordinary skill in the art, facing the problems confronting the inventors of Kasamatsu, would not be motivated to modify Kasamatsu in the manner purported by the Office Action because Kasamatsu teaches away from the desirability of providing an increase in pitch angle of the slider. Accordingly, one of ordinary skill in the art, faced with teachings of Kasamatsu, would try to reduce and/or eliminate the head's pitch angle in order to overcome its disadvantage of unbalancing the flying condition of slider as taught by Kasamatsu. Therefore, it would not have been obvious to one of ordinary skill in the art, faced with the teachings of Kasamatsu, to modify Kasamatsu to **maintain the positive pitch angle of a slider body to be approximately in the range of 20 to 50 micro radians or 50 to 200 micro radians**, as recited in claims 26 and 27, respectively.

Furthermore, it is respectfully submitted that the Office Action's citation to and reliance on *In re Aller*, 105 USPQ 233 is inapposite. The *In re Aller* case dealt with an appellants' process that was identical with that of the prior art, except for that appellants' claims specifying a lower temperature and higher acid concentration. *In re Aller*, 105 USPQ 233. Here, in contrast, the applicant's claims 26 and 27 are not directed to an identical method as that of Kasamatsu. In particular, Kasamatsu's method is directed only

to avoiding stiction between the head slider and the recording medium. As discussed above, based on the teachings in Kasamatsu, one of ordinary skill in the art attempting to discovering the 'optimum' heights (as asserted by the Office Action) of the projections would look to decrease the heights below those taught in Kasamatsu in order to minimize the imbalance to the flying condition of the slider.

In contrast, here, the inventor's methods of claims 26 and 27 provide a new and unexpected result that is different in kind, and not merely degree, from Kasamatsu. In particular, as discussed in the background section of the present application, the protrusions in prior drives (e.g., such as that described in Kasamatsu), that provide a positive pitch angle to reduce stiction between the slider and the disk surface, may not be sufficient in preventing negative pitch conditions from occurring in operation of the drive. (Applicant's present application, specification, page 3). Applicant's claim limitations recited in claims 26 and 27 are intended to provide a different result by seeking to inhibit negative pitch of the slider in operation.

Therefore, it is submitted that each of claims 26 and 27 are patentable over Kasamatsu. Given that claims 28-30 depend from and include the same limitations as claim 26, it is submitted that claims 28-30 are also patentable over Kasamatsu.

In conclusion, applicant respectfully submits that in view of the arguments and amendments set forth herein, the applicable rejections have been overcome.


If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Daniel Ovanezian at (408) 720-8300.

If there are any additional charges, please charge our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: 3/14, 2005

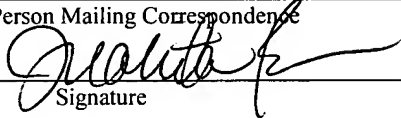

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